Brush-tailed Rock-wallabies in the Grampians

By Roy Dunn*

Introduction

The Brush-tailed Rock-wallaby, *Petrogale penicillata,* was once abundant in north-eastern Gippsland and is known to have occured in parts of western Victoria (Wakefield, 1971), including the Grampians. However by about 1920 the species was believed to have becomc extinct in Victoria until the discovery of several small colonics in the vicinity of the Snowy River in about 1953. *P. penicillata* has declined throughout much of its range and its disappearance from many of its former haunts has been associated by some authors (Wakefield, 1961, 1971; Short, 1982; Maynes and Sharman, 1983) with predation by the introduced European Fox, *Vulpes vulpes.* The arrival of this predator in East Gippsland was followed by a decline in rock-wallaby populations (Wakefield, 1961) and a reduction in numbers of the Yellow-footed Rock-wallaby, *P. xanthopus* in the Gawler Ranges of South Australia coincided with the arrival of foxes in the area shortly after 1910 (Copley, 1983). No evidence was forthcoming to indicate the survival of the Brush-tailed Rock-wallaby in western Victoria until 1970 when a small colony was discovered in the Red Rock area of the western Grampians (Wakefield, 1971). Since that time interest in this colony appears to have waned and no information upon its status has been published for many years. No detailed study of the Grampians rock-wallabies has ever been conducted and the chromosome work which would reveal their relationship to other rock-wallabies has yet to be carried out (R. Close, pers. comm.).

In 1980 I first visited the Red Rock area in an attempt to determine whether or not rock-wallabies still occurred in the area. I have since explored much of the rocky terrain in the vicinity of Red Rock and despite having yet to see a Grampians rock-wallaby the presence of fresh faecal material convinced me that the species was still present in March 1984. Observations were limited to daylight, no spotlighting having been undertaken to date.

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Signs of Survival

In early 1980 Peter Brown and I spent some timc in the Flinders Ranges of South Australia observing that most beautiful of macropods, the Yellow-footed Rock-wallaby, *P. xanthopus.* Directions from Dr. Tony Robinson of the National Parks and Wildlife Service enabled us to quickly locate rock-wallabies in easily accessible habitat where, rather to our surprise, they were abundant and easily visible, especially at dusk when they descended from the rocks to forage. However as we extended our explorations on subsequent days we found that populations were disjunct and scattered and that outcrops and cliffs inhabited by rock-wallabies could most easily be idcntified by the presence of the distinctive faecal pellets or scats of the animals. Upon our return to Victoria we resolved to apply our newly acquired experience in an attempt to locate rock-wallabies in the Grampians.

During 1980 I visited the Red Rock area on three separate occasions. Despite extensive exploration of the steep and often densely vegetated terrain I failed to locate the rock-wallaby site described by Wakefield on the first two visits, but did find a few rock-wallaby scats.

Rock-wallaby scats are often deposited in sheltered situations in caves or upon protected ledges. In such situations they may survive for long periods and

Wakefield (1971) has suggested that some faded faecal pellets may be several decades old. In order to get a rough idea of the rate of fading, some fresh scats were obtained from the captive rock-wallaby colony at Melbourne Zoo. These were placed in a sheltered position exposed to several hours of sunlight daily but protected from rain. The scats were dried out in a few days and two months later had begun to fade in colour. There are obviously many variables which would affect faecal material in the bush but I believe that rock-wallaby scats from exposed sites which show no sign of fading may generally be considered to be less than two months of age. In this paper such scats are described as "fresh".

On my third visit to Red Rock, accompanied by Peter Brown and Denise Deerson of the Fisheries & Wildlife Division, the rock-wallaby site was finally found. Many old and a few fresh scats were found in and around the small caves beneath the mass of fallen rock described by Wakefield as the home of the rock-wallabies, but the site (Site 1) did not appear to be used with regularity. What appeared to be a second home site (Site 2) was later discovered several kilometres to the south of the first, consisting of a labyrinth of caves and crevices beneath fallen rocks. Within its shelter some rock surfaces were highly polished by rock-wallaby use over long periods. Fresh scats were present.

In early 1981 a fire burnt much of the forest immediately adjacent to both sites, however fresh scats were present at both when they were visited about a month after the fire, although these may have predated it.

I next visited the Grampians in October 1982 when I spent three days at Red Rock. Both sites were examined and only scats in a desiccated, faded condition could be found, suggesting that wallabies had been absent for some time. The following day I ascended the bluff above Site 2 to investigate rocks not previously explored

Fig. 1. Rock-wallaby scats collected in the Grampians in October, 1982.

and was relieved to find a number of fresh faecal pellets scattered about on exposed rocks. These were collected and photographed (Fig 1). In September 1983 I examined Site 1 and could find no indication of its continued use by rock-wallabies. Fresh fox tracks were present. The onset of persistent heavy rain prevented investigation of Site 2.

In March 1984 I visited Site 2 accompanied by Dr Robert Close of Macquarie University. Dr Close, who is a member of the Australian Rock-wallaby Survey Team, had investigated numerous Grampians sites over the previous three weeks and some of these contained evidence, in the form of faecal pellets, skeletal material and polished rock surfaces, that they once supported rock-wallaby colonies. One of these old colony sites was within 1 km of Site 1 which was also inspected. However, no evidence had been found that rock-wallabies were still extant in the region.

Having examined Site 2, which contained no signs of recent occupation, we climbed to the rocky bluff above. Here, close to where I had collected fresh scats in October 1982 we found more, some apparently only a few days old. Faeces of various sizes were found, suggesting that several animals, including at least one juvenile, were present. Fox scats were collected close by and these were sent to the Keith Turnbull Research Institute for

examination. They proved to contain no identifiable rock-wallaby remains (H. Brunner, pers. comm.).

Discussion

The apparent desertion of Sites 1 and 2 by wallabies may have been in response to a reduction of available food caused by fire. Alternatively it could signify a further contraction of what may be the last surviving colony of a once extensive population.

A study of the habitat requirements of Brush-tailed Rock-wallabies in New South Wales indicated that the species now appears to be restricted to the most complex and inaccessible rocky sites. Habitat occupied by the species include cliff-faces containing numerous caves, sheltered ledges and steep, narrow cracks or chimneys. The presence of foxes was suggested as one factor which may have raised the threshold of suitability of rocky habitat so that fewer sites are now occupied (Short, 1982).

The fox is now securely established and widely distributed on the Australian mainland, where it has replaced the dingo as the dominant predator in many areas. An agile rock climber, it is small enough to enter the narrow caves and crevices within which rock-wallabies shelter. The fox preys upon a wide range of species but in many areas rabbits form the major part of the diet (Coman, 1973).

The results of a study of dingo predation upon kangaroos and emus (Caughley *et al.*, 1980) challenges the hypothesis that predators are unable to reduce prey species to very low densities because their own numbers decline reciprocally as food becomes scarce. Dingoes in the study, although preying upon kangaroos, had access to an abundant alternative prey in the form of rabbits, and were therefore able to reduce kangaroos to very low densitities without adverse effects upon their own numbers. It may be speculated that foxes are able to impose similar pressures upon rock-wallabies which exist in sympatry with rabbit populations.

Feral goats have been accused of depriving rock-wallabies of essential shelter by ousting them from caves (Copley, 1983) and park rangers have expressed to me their belief that goats played a significant part in the decline of Brush-tailed Rock-wallabies in the Warrumbungles National Park. Goats are encountered infrequently in the Grampians and it seems unlikely that here they have significantly affected rock-wallaby numbers.

Regularly occurring phenomena such as drought and fire may force wallabies to forage away from the security of cliffs thus increasing their vulnerability to predation, and a changed fire regime since European settlement may have caused habitat changes which adversely affect rock-wallabies. The grassy ground-cover which once covered much of the Grampians has been largely replaced by dense, shrubby undergrowth. Grasses are known to form a significant part of rock-wallaby diets (Wakefield, 1971; Copley and Robinson, 1983) and such changes seem likely to have been detrimental, although Short (1982) found that the percentage of grass ground cover did not affect the suitability of rocky habitat for rock-wallabies.

It seems probable that the rock-wallabies of the Grampians have declined to their present level because of a combination of factors including predation and habitat change. When Wakefield first recorded the existence of the Red Rock colony he estimated that it consisted of "only several animals". No further evidence has been produced to suggest that he had underestimated the size of the population, and it seems remarkable that the factors responsible for the progressive decline of the species in Victoria have failed, in a 14 year period, to eliminate this tiny relict colony.

The locations of several sites containing evidence of former occupation by rock-wallabies are known but these colonies

now appear to be extinct. Sightings of rock-wallabies are occasionally reported from various localities in the Grampians but these have yet to be positively substantiated (R. Close, pers. comm.). Much potential rock-wallaby habitat is extremely difficult of access and awaits investigation. It is quite possible that other living colonies exist, but to date the Red Rock colony is the only one for which conclusive evidence of survival is available.

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Little Penguin as a Prey Item of the Leopard Seal

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The Leopard Seal (*Hydrurga leptonyx*) is occasionally recorded along the coast of south-eastern Australia, mainly between the months of August and October (King, 1983). The individuals reported are mostly young animals that tend to move further northwards than breeding adults (Gaskin, 1972).

On the 24 December 1983 a young male Leopard Seal was observed lying on Stephens Beach, south of Port Davey, south-western Tasmania (43° 23′, 145° 58′). It appeared to be in an exhausted state reacting little to the approach of curious humans.

After a time the seal was observed to excrete a large formless faece. On examination this was found to be full of the feathers of the Little Penguin (*Eudyptula minor*). The Little Penguin is a common species off the south-west coast of Tasmania breeding on a number of islands, including Mutton Bird Island which is located offshore from Stephens Beach (refer to TASMAP 8011).

The Leopard Seal has earned a reputation for being an active predator of Antarctic penguin species (Gaskin, 1972) and it would appear that the locally breeding Little Penguin also forms a prey item of Leopard Seals that range into south-eastern Australian waters.

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Fig. 1. Leopard Seal on Stephens Beach, Tasmania.

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